To get beam in hutch:

Push black search button on upstream wall.

Close door and hold it closed while you extract the key.

Put key in Kirk lock on outside of hutch.

Shutter switch will work after annoying beeps end.

To see if you really have beam:

Look in viewport just under "BR1032-06" label on rack. A purple glow means beam.

To change which computer you're looking working with:

Right-hand screen, keyboard, mouse:

Hit <control> twice to toggle between UXASES (where the EXAFS and XY map programs are) and UXAS_BL (the beamline control machine where you work with slits and M1 and set the Keithley gains).

Left-hand screen, keyboard, mouse:

Hit <Alt><Control><Shift>1<enter> for UXAS_DATA (data analysis).
<Alt><Control><Shift>2<enter> gets you LINCOLN (some docs are there).
<Alt><Control><Shift>3<enter> is for ABRAHAM (machine used for tuning mirrors; pray you don't need to use this).

To steer beam onto slits:

Just downstream of the roll slits is a tee with a linear-motion feedthrough sticking out of it. This holds a PIN diode. Position this feedthrough to the mark in the middle. If beam is on, you should get an indication on the middle DVM. If you don't:

Check that the output of the current amp (Stanford Research Systems) is connected to a DVM.

Try power-cycling the SRS current amp.

Try cranking up its sensitivity.

Make sure roll slits are wide open (500x200um - check using "Beamline 10.3.2 Beamline Control System" on UXAS_BL. If not, open them using "Motor Monitor"

Start "Motor Monitor" if not already started.

Choose "Vertical Slit Size" and move to 10um.

Choose "Horizontal Slit Size" and move to 20um.

Choose "M1 Roll" and set the Jog Size to 0.02. Jog up and down to maximize signal. This swings the beam vertically.

Choose "M1 Tilt" and set the Jog Size to 0.0005. Jog up and down to maximize signal. This swings the beam horizontally.

Standard values for translation as of May 21, 2002: H=14.939, V=11.78. The translations should already be there.

Iterate on M1 Roll and M1 Tilt until signal is maximized. You should end up with a signal which registers on the 1mA scale on the current amp.

To start "Motor Monitor":

This lives on the beamline control computer. If "Beamline 10.3.2 Beamline Control System" is running and "Motor Monitor" isn't, select File->Stop Beamline Controls on "Beamline 10.3.2 Beamline Control System", then restart it by clicking the little run arrow on the upper left. If this isn't visible, use the desktop shortcut to BL Control Main.

If neither VI is running, use the desktop shortcut to start the control program, which will automatically launch the Motor Monitor.

To move monochromator without the EXAFS or XY programs:

Use "Motor Monitor", choosing "Mono eV".
If you do a reset, this will be reflected in the EXAFS program.

If the EXAFS program is running, you will need to push the "Mono got there" button to tell it that it hasn't really gotten lost.

To set gains on Keithleys:

Use "Keithley 428v2" VI on beamline control computer. When you turn the knob, you have to hit the Set button to make it actually happen. Don't forget to redo offsets in EXAFS and XY mapping programs.

To set up scalers and Ge detector ROIs for EXAFS scanning:

Use the MCA Utility on the UXASES computer (see manual for how-to). This lets you get a PHA spectrum and configure the counting logic in the EXAFS program. You can either go the fancy route and use the program to edit the scaler map, or you can copy down ROIs and edit the scaler map yourself. There is a shortcut to the scaler map on the desktop. It opens with Notepad. For the usual scaler map, the entries you want to change are roilow and roihigh in the [Scaler 2] section. Change these numbers to the correct ones for the element of interest. See the cheat-sheet for the EXAFS program for a discussion of the file structure.

Tasks within the EXAFS program:

On startup:

Measure the offsets (using Measure Offsets button)

Load in an appropriate scan-parameters file and/or edit the scan. If you change the number of scalers, redo the offsets.

Check your signal quality using the Measurement panel.

To move the mono:

Click on the Operations tab, enter an energy in the Target box, and click Move Mono.

To reset the mono:

Ditto, but use the Reset Mono button.

To start/stop the scan:

The big green button on the left.

To change what's plotted on the screen:

Use the Plot Specification bank of switches. These are supposed to look like lighted switches which go bright when on.

To avoid keeping an aborted scan:

After aborting, go into Scan Editor and decrement the scan number by 1. This will cause the next scan to overwrite the one which just happened.

To recalibrate the mono:

Hang the appropriate foil off the upstream end of the transmission chamber so that the beam passes through it. The beam goes through the left side of the chamber, viewed from downstream.

Make sure the stage isn't in the way and that beam gets through to the chamber.

Set up a scan with 1 region, from <edge>-50eV to <edge>+50 eV, 1eV/step, 2sec/point. Set the plot specification for ln(I0/It) (usually looks like

```
  *......
*
  .*.....
```

on plot control, where * = on, . = off).

Run the scan. Differentiate (switch to L of graph) and find maximum. Use the cursor to pick out the energy for the maximum, and use ^C to copy this value into the clipboard.

Go to the Operations page and paste this energy value into the Target field for the Move Mono and Mono Reset buttons. Hit the Move Mono button.

The mono is now at the edge. Now type in the appropriate edge energy (cuk for the CuK edge, etc.) into the Target box. Hit Mono Reset.

Mono is now calibrated to ~1eV. If you want it better, then repeat 3-6, but with 0.5eV steps, 5 sec. count time, over a narrower range of energies (typically, -20 to +30).

Don't forget to take the foil off again!

To get an averaged MCA spectrum over an area on the sample:

Set up an XY-map scan over the area of interest.

Push the 'Stage Only' button in the XY map program.
This will disable fluorescence data collection so that
the program literally goes through the motions but doesn't
read the detector.

Start the MCA program with Clear set to No so that
the MCA starts to accumulate.

Push 'Run' on the XY map program.

When the map is done, flip the Suspend switch on the
MCA program so the spectrum stops accumulating.

Tasks within the XY map program:

On startup:

With shutter closed, push the Measure I0 Offset
button on the I0 tab on the lower left.

To set up a scan:

Hit the Manual Stage Control button.

Move to where you want the scan to start and push the
Get Start button.

Move to where you want the scan to stop and push the Get Stop
button.

*** Note: the Start position must be to the upper left of the
*** Stop.

Hit Return button.

Push the Scan Parameters button. Do this even if all you want
to change is the start/stop position.

Fill in the pixel sizes and dwell time on the first tab.

Check the I0 (dump and channel) parameters on the second tab.
Note that unlike in the EXAFS code, the unit here is V on
the panel meter, and it's with the offset subtracted. 0.2
is a good number.

Fill in the file parameters (filename, base directory, scan
number as in the EXAFS code) on the third tab.

Push Return.

The Start button will now be enabled. Push it to start.

To navigate on the sample (Manual Stage Control):

Relative to an existing map:

If it's an old map which is not currently displayed,
use the Read New File button on the File I/O tab

on the lower left (same tab control as I0). This will change the scaling of the X and Y axes. To get them back, use Restore Graph Properties on that tab.

Use the cursor and other graph controls to put the cursor on a point of interest.

In Manual Stage Control, push Move to Position (bottom row).

Storing/recalling positions:

The Position Registers hold an array of positions. You can recall one by dialing the index to whichever one you want and pushing the Move to Position button under the Registers control. You can store one by pushing the Load Position button. There is a space in the register for writing a name for each position. This is just for your memory - no effect on program operation.

Stop/Start:

Get Start Position and Get Stop Position load the current position into Start or Stop. You have to do Scan Parameters (Scan Editor) to 'set' these for a scan.

To set an MCA:

Fill in the blanks on the Region of Interest Settings. Assumption: the energy scale is 10eV/channel.

To force the currently-displayed data to be saved:

Push the Force File Save button on the File I/O tab. This is what you'd do if you had had to stop the program using the stop-sign icon at upper left.